

# Patent Claims

1. An organic field effect transistor (OFET), which  
5 comprises at least a first electrode layer having  
source and drain electrodes, a semiconducting layer, an  
insulator layer and a second electrode layer, and in  
which one of the electrodes (source or drain) in the  
10 first electrode layer surrounds the respective other  
electrode in a two-dimensional manner with the  
exception of one side or location (the connection side  
or location) of this electrode, with the result that a  
current channel, which begins and ends on one side of  
15 an electrode of the first electrode layer, can be  
formed in the semiconducting layer.

2. The OFET as claimed in claim 1, in which one of  
the first electrodes respectively bounds the other on  
three of four sides.

20 3. The OFET as claimed in either of the preceding  
claims 1 and 2, in which the second electrode layer  
completely covers the current channel and, in addition,  
at least one other part of one of the first electrodes,  
25 this other additionally covered part having a width in  
the range from 0 to 20  $\mu\text{m}$  and having a length in the  
range of the length of the current channel.

30 4. The OFET as claimed in one of the preceding  
claims, holes and/or interruptions being present in the  
semiconductor layer in order to reduce leakage  
currents.

35 5. An integrated circuit having at least two OFETs as  
claimed in one of the preceding claims, the OFETs being  
arranged in the NAND or NOR gate in such a manner that  
the connection sides or locations are respectively  
opposite one another.

6. The integrated circuit as claimed in claim 5, the connecting lines and/or the inputs and outputs respectively being situated in the region between the connection sides or locations.

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7. The integrated circuit as claimed in either of claims 5 and 6, holes and/or interruptions being provided in the semiconductor layer.

10 8. The integrated circuit as claimed in claim 7, the holes and/or interruptions being situated between the connection sides or locations.

9. The integrated circuit as claimed in one of claims  
15 5 to 8, use being made of a through-contact instead of at least one electrical connection.

10. The integrated circuit as claimed in claim 9, the through-contact extending at least as far as one side  
20 of the OFET (10b).